

# CVR-70

## BETACAM SP STUDIO RECORDER/PLAYER

### General

Originally developed for ENG, the Betacam format is used today as the acquisition format for all types of production. But with new applications came demands for improved picture and sound quality, together with longer play times. The Betacam SP format was developed to meet these demands and provide playback compatibility, while maintaining the reliability and durability of the original format.

The CVR-70 studio VTR combines the performance of Betacam SP with features such as dynamic motion control, viewable pictures in shuttle, a full-featured editing system, a built-in time base corrector and a versatile time code system.

The CVR-70 is compact, lightweight and can be installed in either standard 19-inch EIA racks or consoles in studios and OB vehicles.

### Applications

The CVR-70 is ideal for high-quality ENG/EFM and broadcast replay, feeding a composite editing system, or post-production recording/editing in the component domain, all with a choice of oxide or metal particle tape.

Versatile interfaces allow the CVR-70 to control other VTRs without an edit controller. An RS-422 interface is also provided for external control by an Ampex VRC-2 video recorder controller or an ACE™ or ACE Micro™ editor.

An informative Systems and Accessories Guide has diagrams, options and accessories to help you configure a Betacam system to meet your specific production requirements. You can get a copy from your Ampex sales office or authorized Ampex dealer.

### Service and Support

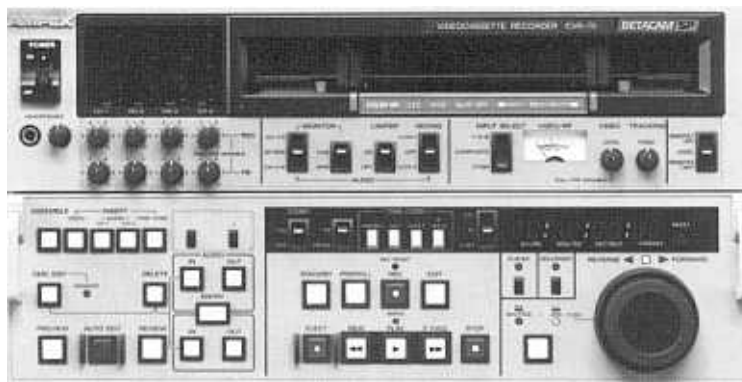
Prompt technical support, speedy spare parts delivery and

responsive field service are available worldwide for the Ampex CVR-65 studio player.

### Features

- ☐ Built-in time base corrector provides broadcast quality video while eliminating any other signal processing requirements
- ☐ TBC remote control interface
- ☐ High speed picture-in-shuttle up to 24x normal speed in monochrome, either forward or reverse
- ☐ Full-featured editor:
  - Assemble and insert edits for Video, Audio 1 and 2, and time code
  - Preview/Review allows check of edit accuracy
  - In/Out marks may be trimmed either direction on a frame-by-frame basis
- ☐ Jog function allows tape movement in either direction, one frame at a time
- ☐ Versatile editing interfaces:
  - with a CVR-75 or similarly controlled VTR
  - with an Ampex VRC-2 video video recorder controller
  - with an ACE™ or ACE Micro™ editor
- ☐ Dynamic Motion Control: the CVR-70 can memorize rehearsed playback speeds of a connected CVR-65 or CVR-75 over their tracking range (–1 to +2x normal), and then command the CVR-65 or CVR-75 to reproduce these speeds in subsequent editing operations
- ☐ Versatile Time Code System
  - Vertical Interval Time Code (VITC) and SMPTE/EBU longitudinal track format
  - Presettable User Bits, free-run or record-run modes
  - Genlock for setting/synchronizing to an external time code master generator
  - Built-in time code generator/reader
- ☐ Two composite outputs
- ☐ Two dub/component outputs:
  - Y, R-Y, B-Y or Compressed Time Division Multiplexed (CTDM) output for high-quality component editing
- ☐ Color framing: superior color framing operation, using both the CF flag and the Vertical Interval Subcarrier (VISC) system when operating in a composite environment
- ☐ Studio-quality audio performance:
  - Four channels: two longitudinal, two AFM
  - Separate playback levels for each channel
  - Integrated mixer for channels 1 and 2
  - Low impedance audio monitor outputs for separate or mixed output
  - Dolby C\* noise reduction on longitudinal channels
- ☐ Multi-function hours meter
- ☐ Headphone jack with volume control

\*Dolby C is a registered trademark of Dolby Laboratories Licensing Corp.



## CVR-70 Recorder/Player Specifications (Playback on CVR-75)

|                                    |                               | NTSC                                                                                                                   | NTSC                                                            | PAL/SECAM                                                    | PAL/SECAM |
|------------------------------------|-------------------------------|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------|-----------|
| <b>VIDEO</b><br>(Component In/Out) | Bandwidth, luminance          | OXIDE TAPE<br>30 Hz to 4.1 MHz<br>+ 0.5/– 6.0 dB                                                                       | METAL PARTICLE TAPE<br>30 Hz to 4.5 MHz<br>+ 0.5/– 3.0 dB       | OXIDE TAPE<br>25 Hz to 4.0 MHz<br>+ 0.5/– 6.0 dB             |           |
|                                    | Chrominance, R-Y/B-Y          | 30 Hz to 1.5 MHz<br>+ 0.5/– 3.0 dB                                                                                     | 30 Hz to 1.5 MHz<br>+ 0.5/– 3.0 dB                              | 25 Hz to 1.5 MHz<br>+ 0.5/– 3.0 dB                           |           |
|                                    | S/N Luminance                 | 48 dB                                                                                                                  | 51 dB                                                           | 47 dB                                                        |           |
|                                    | Chrominance                   | 50 dB                                                                                                                  | 53 dB                                                           | 45 dB                                                        |           |
|                                    | K-factor (2T pulse)           | Less than 3%                                                                                                           | Less than 2%                                                    | Less than 3%                                                 |           |
|                                    | LF Non-linearity              | Less than 3%                                                                                                           | Less than 2%                                                    | Less than 3%                                                 |           |
|                                    | Chrominance/luminance Delay   | N/A                                                                                                                    | N/A                                                             | Less than 4%                                                 |           |
|                                    |                               | Less than 20 nsec                                                                                                      | Less than 20 nsec                                               | Less than 20 nsec PAL<br>Less than 50 nsec SECAM             |           |
| <b>AUDIO</b>                       | Frequency response            | LONGITUDINAL<br>OXIDE TAPE<br>50 Hz to 15 kHz $\pm$ 3 dB                                                               | LONGITUDINAL<br>METAL PARTICLE TAPE<br>50 Hz to 15 kHz 1/– 2 dB | AFM<br>METAL PARTICLE TAPE<br>20 Hz to 20 kHz + 0.5/– 2.0 dB |           |
|                                    | S/N                           | 50 dB (3% distortion level, without NR system)                                                                         | 54 dB (3% distortion level, without NR system)                  |                                                              |           |
|                                    | Dynamic range                 | N/A                                                                                                                    | N/A                                                             | More than 85 dB                                              |           |
|                                    | Phase difference              | $\pm$ 20 degrees at 15 kHz                                                                                             | $\pm$ 20 degrees at 15 kHz                                      | $\pm$ 10 degrees at 20 kHz                                   |           |
|                                    | Distortion (1 kHz ref. level) | Less than 2%                                                                                                           | Less than 1%                                                    | Less than 0.5%                                               |           |
|                                    | Wow and flutter               | Less than 0.10% rms                                                                                                    | Less than 0.10% rms                                             | N/A                                                          |           |
|                                    | Crosstalk                     | Less than – 65 dB                                                                                                      | Less than – 65 dB                                               | Less than – 70 dB                                            |           |
|                                    | Depth of Erasure              | More than 70 dB                                                                                                        | More than 70 dB                                                 | N/A                                                          |           |
| <b>SIGNAL INPUTS</b>               | Video (75 Ohms)               | Composite video 1.0V p-p                                                                                               |                                                                 |                                                              |           |
|                                    | Ref Video (75 Ohms)           | 1.0V p-p $\pm$ 0.3V                                                                                                    |                                                                 |                                                              |           |
|                                    | Dub/component (75 Ohms)       | (12-pin connector)                                                                                                     |                                                                 |                                                              |           |
|                                    | Luminance                     | 1.0V p-p sync negative                                                                                                 |                                                                 |                                                              |           |
|                                    | Chrominance, R-Y/B-Y          | 0.7V p-p (75% color bars)                                                                                              |                                                                 |                                                              |           |
|                                    | Component (75 Ohms)           | (3 BNC connector)                                                                                                      |                                                                 |                                                              |           |
|                                    |                               | 1.0V p-p sync negative                                                                                                 |                                                                 |                                                              |           |
|                                    | R-Y/B-Y                       | 0.7V p-p (100% color bars)                                                                                             |                                                                 |                                                              |           |
|                                    | Audio Ch. 1/2/3/4/            | – 60 dB, 3K Ohms balanced                                                                                              |                                                                 |                                                              |           |
|                                    | Low                           | $\pm$ 4 dB 600 Ohms, 10K Ohms balanced                                                                                 |                                                                 |                                                              |           |
|                                    | High                          |                                                                                                                        |                                                                 |                                                              |           |
|                                    | Time code                     | 0.5V to 18V p-p, 10K Ohms balanced                                                                                     |                                                                 |                                                              |           |
| <b>SIGNAL OUTPUTS</b>              | Video 1 (75 Ohms)             | 1.0V p-p sync negative                                                                                                 |                                                                 |                                                              |           |
|                                    | Video 2 (75 Ohms)             |                                                                                                                        |                                                                 |                                                              |           |
|                                    | Composite video               | 1.0V p-p sync negative                                                                                                 |                                                                 |                                                              |           |
|                                    | Non-composite video           | 0.714V p-p/NTSC                                                                                                        |                                                                 | 0.7V p-p/PAL/SECAM                                           |           |
|                                    | Video 3 (75 Ohms)             |                                                                                                                        |                                                                 |                                                              |           |
|                                    | Composite video               | 1.0V p-p sync negative (monitor out with character insertion)                                                          |                                                                 |                                                              |           |
|                                    | Dub/component (75 Ohms)       | (12-pin connector)                                                                                                     |                                                                 |                                                              |           |
|                                    | Luminance                     | 1.0V p-p sync negative                                                                                                 |                                                                 |                                                              |           |
|                                    | Chrominance R-Y/B-Y           | 0.7V p-p (75% color bars)                                                                                              |                                                                 |                                                              |           |
|                                    | Component (75 Ohms)           | (3 BNC connector)                                                                                                      |                                                                 |                                                              |           |
|                                    |                               | 1.0V p-p sync negative                                                                                                 |                                                                 |                                                              |           |
|                                    | R-Y/B-Y                       | 0.7V p-p (100% color bars)                                                                                             |                                                                 |                                                              |           |
|                                    | Audio Ch. 1/2/3/4             |                                                                                                                        |                                                                 |                                                              |           |
|                                    | Monitor Ch. 1/3, Ch. 2/4      | + 4 dBm, 600 impedance balanced (150 Ohms load permissible)                                                            |                                                                 |                                                              |           |
|                                    | Time code                     | 0.5V to 18V p-p 10K Ohms balanced                                                                                      |                                                                 |                                                              |           |
| <b>PROCESSOR ADJUSTMENT RANGE</b>  | Video level                   | $\pm$ 3 dB                                                                                                             |                                                                 |                                                              |           |
|                                    | Chroma level                  | $\pm$ 3 dB                                                                                                             |                                                                 |                                                              |           |
|                                    | Set-up level/black level      | 0 to + 15 IRE (NTSC) $\pm$ 110mV (PAL)                                                                                 |                                                                 |                                                              |           |
|                                    | Hue/burst chroma phase        | $\pm$ 15° (NTSC)                                                                                                       |                                                                 |                                                              |           |
|                                    | System SC phase               | 360° p-p                                                                                                               |                                                                 |                                                              |           |
|                                    | System sync phase             | + 3 to – 1 $\mu$ sec                                                                                                   |                                                                 |                                                              |           |
|                                    | Chrominance/luminance delay   | $\pm$ 50 nsec.                                                                                                         |                                                                 |                                                              |           |
| <b>GENERAL</b>                     | Record/playback time          | 90 min./NTSC                                                                                                           |                                                                 | 100 min./PAL/SECAM                                           |           |
|                                    | Shuttle time                  | Less than 3 min. with 90 min. cassette ( $\pm$ 32X play speed)                                                         |                                                                 |                                                              |           |
|                                    | Search speed, Shuttle         | Still, 1/30, 1/10, 1/5, 1/2, 1, 2, 5, and 24 times normal forward and reverse                                          |                                                                 |                                                              |           |
|                                    | Jog                           | Frame-by-frame forward and reverse                                                                                     |                                                                 |                                                              |           |
|                                    | Servo Lock                    | Less than 0.6 seconds from Stand-by mode                                                                               |                                                                 |                                                              |           |
|                                    | Tape speed                    | 11.86 cm/sec/NTSC                                                                                                      |                                                                 | 10.15 cm/sec/PAL/SECAM                                       |           |
|                                    | Dimensions                    | 9.4" (237 mm) H $\times$ 16.8" (427 mm) W $\times$ 20.5" (520 mm) D                                                    |                                                                 |                                                              |           |
|                                    | Weight                        | 66 lb (30 kg.)                                                                                                         |                                                                 |                                                              |           |
|                                    | Temperature, Operating        | 5° to + 40° C (41° F to 104° F)                                                                                        |                                                                 |                                                              |           |
|                                    | Storage                       | – 20°C to 60°C (– 4°F to 140° F)                                                                                       |                                                                 |                                                              |           |
|                                    | Humidity                      | Less than 80% RH                                                                                                       |                                                                 |                                                              |           |
|                                    | Power requirements            | AC 90V to 265V, 48 to 64 Hz                                                                                            |                                                                 |                                                              |           |
|                                    | Power consumption             | 225W                                                                                                                   |                                                                 |                                                              |           |
|                                    | Supplied accessories          | AC power cord, 12-pin dubbing cable, Extender Boards, RCC-5G, 9-pin remote control cable. Operation/maintenance manual |                                                                 |                                                              |           |

Ampex reserves the right to make product and specification changes at any time without notice.

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